
SURVEILLANCE OF VACCINE-PREVENTABLE DISEASES

As the incidence of vaccine-preventable diseases declines, additional efforts are required to ensure that appropriate and timely diagnosis and reporting of suspected vaccine-preventable diseases continues. The rapid investigation and reporting of **all suspected cases** has become increasingly important. **All reports of suspected cases should be investigated immediately.**

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WCONGENITAL RUBELLA SYNDROME

WDIPHThERIA

WHAEMOPHILUS INFLUENZAE TYPE B

WMEASLES

WMUMPS

WPERINATAL HEPATITIS B

WPERTUSSIS

WPOLIOMYELITIS

WRUBELLA

WTETANUS

WVARICELLA

Reference:

Centers for Disease Control and Prevention. Manual for the surveillance of vaccine-preventable diseases. Centers for Disease Control and Prevention: Atlanta, GA, 1997.

Congenital Rubella Syndrome

Clinical case definition

An illness usually manifesting in infancy resulting from rubella infection in utero and characterized by signs or symptoms from the following categories:

- Cataracts/congenital glaucoma, congenital heart disease (most commonly patent ductus arteriosus, or peripheral pulmonary artery stenosis), loss of hearing, pigmentary retinopathy.
- Purpura, splenomegaly, jaundice, microcephaly, mental retardation, meningoencephalitis, radiolucent bone disease.

Laboratory criteria for diagnosis

- Demonstration of rubella-specific immunoglobulin M antibody, or
- Infant rubella antibody level that persists at a higher level and for a longer period than expected from passive transfer of maternal antibody (i.e., rubella titer that does not drop at the expected rate of a twofold dilution per month), or
- Isolation of rubella virus from a clinical specimen

Case Classification

Suspected: a case with some compatible clinical findings but not meeting the criteria for a probable case

Probable: a case that is not laboratory confirmed and that has any two complications listed in paragraph a) of the clinical case definition or one complication from paragraph a) and one from paragraph b), and lacks evidence of any other etiology

Confirmed: a clinically compatible case that is laboratory confirmed

Infection only: a case that demonstrates laboratory evidence of infection, but without any clinical symptoms or signs

Comment

In probable cases, either or both of the eye-related findings (i.e., cataracts and congenital glaucoma) are interpreted as a single complication. In cases classified as infection only, if any compatible signs or symptoms (e.g., hearing loss) are identified later, the case is reclassified as confirmed.

Diphtheria

Clinical case definition

An upper-respiratory tract illness characterized by sore throat, low-grade fever, and an adherent membrane of the tonsil(s), pharynx, and/or nose.

Laboratory criteria for diagnosis

- Isolation of *Corynebacterium diphtheriae* from a clinical specimen or
- Histopathologic diagnosis of diphtheria

Case Classification

Probable: a clinically compatible case that is not laboratory confirmed and is not epidemiologically linked to a laboratory-confirmed case

Confirmed: a clinically compatible case that is either laboratory confirmed or epidemiologically linked to a laboratory-confirmed case

Comment

Cutaneous diphtheria is not reportable. Respiratory disease caused by non-toxigenic *C. diphtheriae* should be reported as diphtheria. All diphtheria isolates, regardless of association with disease, should be sent to the Diphtheria Laboratory, National Center for Infectious Diseases, CDC.

***Haemophilus Influenzae* Type B**

Clinical case definition

Invasive disease caused by *Haemophilus influenzae* may produce any of several clinical syndromes, including meningitis, bacteremia, epiglottitis, or pneumonia.

Laboratory criteria for diagnosis

- Isolation of *H. Influenzae* from a normally sterile site (e.g., blood or cerebrospinal fluid [CSF] or, less commonly, joint, pleural, or pericardial fluid.)

Case Classification

Probable: a clinically compatible case with detection of *H. Influenzae* type b antigen in CSF

Confirmed: a clinically compatible case that is laboratory confirmed

Comment

Positive antigen test results from urine or serum samples are unreliable for diagnosis of *H. Influenzae* disease.

Measles

Clinical case definition

An illness characterized by all of the following:

- a generalized rash lasting ≥ 3 days
- a temperature ≥ 101.0 F (≥ 38.3 C)
- cough, coryza, or conjunctivitis

Laboratory criteria for diagnosis

- Positive serologic test for measles immunoglobulin M antibody, or
- Significant rise in measles antibody level by any standard serologic assay, or
- Isolation of measles virus from a clinical specimen

Case Classification

Suspected: any febrile illness accompanied by rash

Probable: a case that meets the clinical case definition, has noncontributory or no serologic or virologic testing, and is not epidemiologically linked to a confirmed case

Confirmed: a case that is laboratory confirmed or that meets the clinical case definition and is epidemiologically linked to a confirmed case. A laboratory-confirmed case does not need to meet the clinical case definition.

Comment

Confirmed cases should be reported nationally. An *imported* case has its source outside the country or state. Rash onset occurs within 18 days after entering the jurisdiction, and illness cannot be linked to local transmission. Imported cases should be classified as:

•***International.*** A case that is imported from another country

•***Out-of-State.*** A case that is imported from another state in the United States. The possibility that a patient was exposed within his or her state of residence should be excluded; therefore, the patient either must have been out of state continuously for the entire period of possible exposure (at least 7-18 days before onset of rash) or have had one of the following types of exposure while out of state: a) face-to-face contact with a person who had either a probable or confirmed case or b) attendance in the same institution as a person who had a case of measles (e.g., in a school, classroom, or day care center).

An ***indigenous*** case is defined as a case of measles that is not imported. Cases that are linked to imported cases should be classified as indigenous if the exposure to the imported case occurred in the reporting state. Any case that cannot be proved to be imported should be classified as indigenous.

Mumps

Clinical case definition

An illness with acute onset of unilateral or bilateral tender, self-limited swelling of the parotid or other salivary gland, lasting ≥ 2 days, and without other apparent cause.

Laboratory criteria for diagnosis

- Positive serologic test for mumps immunoglobulin M (IgM) antibody, or
- Significant rise in mumps antibody level by any standard serologic assay, or
- Isolation of mumps virus from a clinical specimen

Case Classification

Probable: a case that meets the clinical case definition, has noncontributory or no serologic or virologic testing, and is not epidemiologically linked to a confirmed or probable case

Confirmed: a case that is laboratory confirmed or that meets the clinical case definition and is epidemiologically linked to a confirmed or probable case. A laboratory-confirmed case does not need to meet the clinical case definition.

Comment

Two probable cases that are epidemiologically linked would be considered confirmed, even in the absence of laboratory confirmation. False-positive IgM results by immunofluorescent antibody assays have been reported.

Perinatal Hepatitis B

Clinical case definition

Perinatal hepatitis B in the newborn may range from asymptomatic to fulminate hepatitis.

Laboratory criteria for diagnosis

- Hepatitis B surface antigen (HBsAg) positive pregnant women

Comment

Infants born to HBsAg-positive mothers should receive hepatitis B immune globulin (HBIG) and the first dose of hepatitis B vaccine within 12 hours of birth, followed by the second and third doses of vaccine at 1-2 months of age and 6 months of age, respectively. Postvaccination testing for HBsAg and anti-HBs is recommended from 3 to 9 months following completion of the vaccine series. (See Perinatal Hepatitis B Prevention Protocols)

Pertussis

Clinical case definition

A cough illness lasting ≥ 2 weeks with one of the following: paroxysms of coughing, inspiratory “whoop”, or post-tussive vomiting, without other apparent cause.

Laboratory criteria for diagnosis

- Isolation of *Bordetella pertussis* from a clinical specimen or
- Positive polymerase chain reaction for *B. Pertussis*

Case Classification

Probable: a case that meets the clinical case definition, is not laboratory confirmed, and is not epidemiologically linked to a laboratory-confirmed case

Confirmed: a case that is laboratory confirmed or one that meets the clinical case definition and is either laboratory confirmed or epidemiologically linked to a laboratory-confirmed case

Comment

The clinical case definition is appropriate for endemic or sporadic cases. In outbreak settings, a case may be defined as a cough illness lasting ≥ 2 weeks. Because some studies have documented that direct fluorescent antibody testing of nasopharyngeal secretions has low sensitivity and variable specificity, it should not be relied on as a criterion for laboratory confirmation. Serologic testing for pertussis is available in some areas but is not standardized and, therefore, should not be relied on as a criterion for laboratory confirmation for national reporting purposes. Both probable and confirmed cases should be reported nationally.

Poliomyelitis

Clinical case definition

Acute onset of a flaccid paralysis of one or more limbs with decreased or absent tendon reflexes in the affected limbs, without other apparent cause, and without sensory or cognitive loss.

Laboratory criteria for diagnosis

All suspected cases of paralytic poliomyelitis are reviewed by a panel of expert consultants before final classification occurs. Confirmed cases are then further classified based on epidemiologic and laboratory criteria.

Case Classification

Probable: a case that meets the clinical case definition

Confirmed: a case that meets the clinical case definition and in which the patient has a neurologic deficit 60 days after onset of initial symptoms, has died, or has unknown follow-up status

Rubella

Clinical case definition

An illness that has all of the following characteristics:

- Acute onset of generalized maculopapular rash
- Temperature >99.0 F (>37.2 C), if measured
- Arthralgia/arthritis, lymphadenopathy, or conjunctivitis

Laboratory criteria for diagnosis

- Positive serologic test for rubella immunoglobulin M (IgM) antibody, or
- Significant rise in rubella antibody level by any standard serologic assay, or
- Isolation of rubella virus from a clinical specimen

Case Classification

Suspected: any generalized rash illness of acute onset

Probable: a case that meets the clinical case definition, has noncontributory or no serologic or virologic testing, and is not epidemiologically linked to a laboratory-confirmed case

Confirmed: a case that is laboratory confirmed or that meets the clinical case definition and is epidemiologically linked to a laboratory-confirmed case

Comment

Serum rubella IgM test results that are false positives have been reported in persons with other viral infections (e.g., acute infection with Epstein-Barr virus [infectious mononucleosis], recent cytomegalovirus infection, and parvovirus infection) or in the presence of rheumatoid factor. Patients who have laboratory evidence of recent measles infection are excluded.

Tetanus

Clinical Case Definition

Acute onset of hypertonia and/or painful muscular contractions (usually of the muscles of the jaw and neck) and generalized muscle spasms without other apparent medical cause.

Laboratory criteria for diagnosis

C There are **no** laboratory findings characteristic of tetanus. The diagnosis is entirely clinical and does not depend upon bacteriologic confirmation. Sera collected before TIG is administered can demonstrate susceptibility of a patient to the disease.

Case Classification

Confirmed: a clinically compatible case, as reported by a health care professional

Varicella*

Clinical case definition

An illness with acute onset of diffuse (generalized) papulovesicular rash without other apparent cause.

Laboratory criteria for diagnosis**

- Isolation of varicella virus from a clinical specimen, or
- Significant rise in varicella antibody level by any standard serologic assay

Case Classification

Probable: a case that meets the clinical case definition, is not laboratory confirmed, and is not epidemiologically linked to another probable or confirmed case

Confirmed: a case that is laboratory confirmed or that meets the clinical case definition and is epidemiologically linked to a confirmed or probable case

Comment

Two probable cases that are epidemiologically linked would be considered confirmed, even in the absence of laboratory confirmation.

***Varicella is not nationally notifiable.**

****Laboratory diagnosis of varicella is not routinely required, but may be useful in special circumstances to confirm the diagnosis or to determine varicella susceptibility.**
